

**The Fertilizer Institute**  
**Questions and Answers about Perchlorate and Fertilizer**

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What is perchlorate?

Perchlorate is a compound consisting of one chlorine and four oxygen atoms. It is present as part of certain geologic deposits and is also produced for industrial uses. Perchlorate can exist as ammonium, potassium, magnesium and sodium perchlorate or other metal salts.

Perchlorate salts are used in a variety of industrial applications, but most significantly as oxidizers or oxygen sources in solid propellant for rockets, missiles, and fireworks. Perchlorate salts are also used in air bag inflators.

Why is there concern about perchlorate?

Perchlorate has been detected in surface water and groundwater near various facilities that have manufactured or tested solid rocket fuels. Because of its shelf life the fuels must periodically be replaced. Its environmental occurrence coupled with its known mobility and persistence has elevated regulatory concern regarding the compound. Reduced thyroid function has been associated with developmental effects in animal testing.

In 1997 researchers developed a new analysis method, ion chromatography, that detects lower levels of perchlorate in water samples. This led to increased detection of perchlorate in surface water and groundwater in several states, primarily in California and Nevada.

What has been done to address these concerns?

Soon after reports of perchlorate detection in California and Nevada, the Environmental Protection Agency began work on a document to characterize the human and ecological risks to perchlorate.

In January 1998 an Interagency Perchlorate Steering Committee (IPSC) was formed to ensure an integrated approach to addressing perchlorate issues. The IPSC conducted an expedited toxicological assessment for perchlorate.

Subsequently, the aerospace industry formed the Perchlorate Study Group (PSG) to study the issue of perchlorate contamination and remediation. As part of their efforts, the PSG commissioned a study to investigate fertilizers as a possible source of perchlorate. A previous study reported in the 1970s showed that perchlorate was a natural constituent of certain Chilean ores that were used as fertilizer raw material.

When did the fertilizer industry get involved?

In March 1999 EPA's environmental research lab in Athens, Georgia, called The Fertilizer Institute (TFI) to say the lab had found perchlorate in eight fertilizer samples and was preparing to publish a paper identifying fertilizers as a potential source of perchlorates in the environment.

In the five months since this conversation, TFI has collected information through literature searches and contacts with other interested parties. TFI also contacted the Perchlorate Study Group and learned of the

testing they were doing. Also, TFI has collected product samples from its members and is currently analyzing them for the presence of perchlorates.

### Is there perchlorate in fertilizer?

Current data do not support definitive conclusions regarding perchlorate presence in fertilizer. However, we do take seriously any questions regarding the quality of our products, and TFI does believe that enough information exists to warrant further investigation.

The fertilizer industry believes its products are safe. As an industry, we have more than fifty years experience in helping the agricultural community produce the safest, most abundant food supply in the world.

TFI is working in cooperation with EPA and the Perchlorate Study Group, consultants and university laboratories to examine the issue of perchlorates in fertilizer. Currently, we are attempting to establish a standard method for extracting and analyzing solid matrix samples that will ensure the uniformity, reproducibility and accuracy of analytical data.

The fertilizer industry, through The Fertilizer Institute, is committed to using the best available science to answer these questions. The first step in this process is to answer questions about the incidence of perchlorate in fertilizer. Should it be necessary, additional questions about exposure pathways and risk levels also must be addressed.

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